

<b>PRE-APPEAL BRIEF REQUEST FOR REVIEW</b>		Docket Number (Optional) BUR920030121US1
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]  on _____  Signature _____  Typed or printed name _____	Application Number 10/707,908	Filed January 23, 2004
	First Named Inventor Jason M. Benz	
	Art Unit 1756	Examiner John S. Ruggles

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant/inventor.  
 assignee of record of the entire interest.  
 See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.  
 (Form PTO/SB/96)  
 attorney or agent of record.  
 Registration number 53,352.  
 attorney or agent acting under 37 CFR 1.34.  
 Registration number if acting under 37 CFR 1.34 \_\_\_\_\_.

/Duane N. Moore/

Signature

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Typed or printed name

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Telephone number

July 20, 2007

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.  
 Submit multiple forms if more than one signature is required, see below\*.

<input type="checkbox"/>	*Total of _____ forms are submitted.
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This collection of information is required by 35 U.S.C. 132. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11, 1.14 and 41.6. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re patent application of:

Jason M. Benz

Atty. Docket No.: BUR920030121US1

Serial No.: 10/707,908

Group Art Unit: 1756

Filed: January 23, 2004

Examiner: Ruggles, John S.

For: **PROCESS FOR CREATING PHASE EDGE STRUCTURES**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**ATTACHMENT TO PRE-APPEAL BRIEF REQUEST FOR REVIEW**

Sir:

This Pre-Appeal Brief Request is being submitted together with a Notice of Appeal and is in response to the Office Action mailed April 20, 2007, setting a three-month statutory period for response. Therefore, this Request is timely filed.

Claims 1, 3-5, 15, 17-18, 24, and 26 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dao, et al. (U.S. Patent No. 5,302,477), hereinafter referred to as Dao, in view of Schroeder, et al. (U.S. Publication No. 2003/0027057), hereinafter referred to as Schroeder, and in further view of either Levenson (U.S. Patent No. 6,251,549), Rolfson (U.S. Patent No. 6,395,432), or Applicant's Admitted Prior Art. Claims 8, 10-12, and 25 stand rejected under 35 U.S.C. §103(a) as unpatentable over Dao, in view of Schroeder, and in further view of Tzu, et al. (U.S. Patent No. 5,888,678), hereinafter referred to as Tzu. Claims 8, 10-12, and 25 stand rejected under 35 U.S.C. §103(a) as unpatentable over either Dao, in view of Schroeder, and in further view of Tzu and in further view of either Levenson, Rolfson, or AAPA. Claims 21 and 23 stand rejected under 35 U.S.C. §103(a) as unpatentable over either Dao, in view of Schroeder, in further view of either Levenson, Rolfson, or AAPA, in further view of Sandstrom (U.S. Publication No. 2002/0125443). Claim 22 stands rejected under 35 U.S.C. §103(a) as unpatentable over either Dao or Schroeder, in view of Tzu and in further view of either

Levenson, Rolfson, or AAPA, and in further view of Sandstrom. Applicants respectfully traverse these rejections based on the following discussion.

Applicants respectfully traverse these rejections because the rejections contain two clear errors. First, the prior art of record misses the claim element wherein said first and second regions each comprise an uninterrupted rectangular surface that lacks an intervening structure. Secondly, the references miss the claim element wherein said second region comprises a similar shape and size as said first region.

**A. Missing Claim Element – said first and second regions each comprise an uninterrupted rectangular surface that lacks an intervening structure.**

As illustrated in Figures 6A and 6B of Applicants' disclosure, a first region 114 and the second region 116 each comprise an uninterrupted rectangular surface that lacks an intervening structure. To the contrary, as illustrated in Figures 4A and 10 of Dao, the region 24 comprises a rectangular ring with an intervening structure (i.e., the block 23) in the middle thereof. Similarly, the region 27 comprises a rectangular ring with an intervening structure (i.e., the opening 26) in the middle thereof.

Furthermore, Applicants submit that it would not have been obvious to combine Dao with Schroeder. More specifically, Applicants submit that Dao teaches away from the proposed combination of Dao and Schroeder because Dao teaches that a patterning layer must be aligned such that a rim (which the Office Action asserts teaches the second region of the claimed invention) is centered about an intervening structure.

Referring to Figures 9 and 10, Dao teaches that the “[p]atterning layer 61 **must be** precisely aligned to ensure ... that [the] phase-shifting rim 27 is centered about the opening 26” (Dao, col. 9, lines 3-5 (emphasis added)). Applicants submit that the opening 26 is the *intervening structure* within the phase-shifting rim 27 that prevents the phase-shifting rim 27 from being an uninterrupted rectangular structure. Further, Applicants submit that the positioning of the intervening opening 26 (within the phase-shifting rim 27) is a direct and necessary result of the **required** alignment of the patterning layer 61.

Accordingly, because the patterning layer “must be” aligned in such a way, the resulting opening 26 must be formed as an intervening structure that prevents the phase-shifting rim 27 from being an uninterrupted rectangular structure. To attempt to combine the uninterrupted rectangular surface of Schroeder with the structure of Dao would be to ignore and disregard the direct and explicit teachings of Dao (i.e., that the “[p]atterning layer 61 **must be** precisely aligned to ensure, for example, that phase-shifting rim 27 is centered about opening 26” (Dao, col. 9, lines 3-5 (emphasis added)). Accordingly, it is Applicants’ position that it would not have been obvious to combine the structure of Schroeder with the teachings of Dao; and as such, the prior art of record misses the claim element wherein said first and second regions each comprise an uninterrupted rectangular surface that lacks an intervening structure.

**B. Missing Claim Element – wherein said second region comprises a similar shape and size as said first region.**

The Office Action asserts that “neither Dao et al. or Schroeder et al. specifically teach a method of forming a PSM having adjacent first and second similarly shaped and sized rectangular 0° and 180° phase features … However … a PSM having book-matched adjacent first and second similarly shaped and sized rectangular regions is well known in the art of making PSMs, as exemplified by … Levenson (Figures 9-11, col. 6 lines 53-61)” (Office Action, p. 7, para. 4 – p. 8, para. 1).

Applicants traverse the rejections because, contrary to the position taken in the Office Action, it would not have been obvious to combine Levenson with Dao or Schroeder. More specifically, Applicants submit that because Levenson teaches *simultaneously* forming the first and second regions, Levenson teaches away from the claimed invention. Independent claims 1 and 15 define “performing a first patterning … to expose a first region … and performing additional patterning … to expose a second region”. Moreover, independent claim 8 defines “performing a first patterning of said opaque layer to expose first regions … and performing additional patterning of said opaque layer to expose second regions and third regions”.

To the contrary, as described in column 7, lines 63-64 of Levenson, the phase shift pattern 246 is formed in the material 242 by stamping, molding, or etching. As also described in column 7, line 65 – column 8, line 6, FIG. 25 shows a picture of construction of a generic substrate for a generic phase shift mask blank, whereby phase shift material 254 is deposited on the flat plate in the phase shift areas 256. Such deposition systems as plasma deposition, CVD deposition, and other deposition systems are known in the art. Dissolving the resist 252 lifts off the material 254 deposited on top of the resist, and leaves material 254 in the phase shift areas 256.

Nothing within Levenson discloses exposing a first region and subsequently performing an additional patterning to expose a second region. Instead, Levenson teaches *simultaneously* forming the first and second regions. Therefore, Applicants submit that it would not have been obvious to combine Levenson with Dao or Schroeder because Levenson teaches away from the claimed invention.

In addition, the Office Action asserts that “a PSM having book-matched adjacent first and second similarly shaped and sized rectangular regions is well known in the art of making PSMs, as exemplified by … Rolfson (Figure 12, col. 6 lines 28-36)” (Office Action, p. 7, para. 4 – p. 8, para. 1).

Applicants traverse the rejections because, contrary to the position taken in the Office Action, it would not have been obvious to combine Rolfson with Dao or Schroeder. More specifically, Applicants submit that because Rolfson teaches *simultaneously* forming the first and second regions, Rolfson teaches away from the claimed invention.

Figures 1, 2, 5, and 6 of Rolfson illustrate successive processing steps of forming alternating phase shift regions 32 and 34 (See “Brief Description of the Drawings” section, col. 3, lines 4-14). Particularly, phase shift regions 32 and 34 are formed *simultaneously* in the processing step shown in FIG. 5.

Nothing within Rolfson discloses exposing a first region and subsequently performing an additional patterning to expose a second region. Instead, Rolfson teaches *simultaneously* forming the first and second regions. Therefore, Applicants submit that it

would not have been obvious to combine Rolfson with Dao or Schroeder because Rolfson teaches away from the claimed invention.

The Office Action asserts that “the particular configuration shown by instant Figure 5A or instant Figure 6A” is admitted as prior art by Applicants (Office Action, p. 7, para. 4 – p. 8, para. 1). Applicants respectfully disagree. More specifically, the Office Action argues that Figures 4A-6B show the same PSM structure as Figures 1A-3B (Office Action, p. 7, para. 4 – p. 8, para. 1). However, as provided in paragraph 0018 of Applicants’ disclosure, “FIGS. 1A-3B illustrate a methodology that is utilized to create a phase shift mask. This methodology is not necessarily well known; however, the invention is an improvement on this methodology”. Therefore, contrary to the position taken in the Office Action, Figures 5A and 6A do not disclose prior art structures.

In view of the foregoing, Applicants submit that the prior art of record misses the claimed feature wherein said second region comprises a similar shape and size as said first region. Levenson and Rolfson each disclose *simultaneously* forming the first and second regions; and as such, both Levenson and Rolfson teach away from the claimed invention.

Please charge any deficiencies and credit any overpayments to Attorney’s Deposit Account Number 09-0456.

Respectfully submitted,

Dated: July 20, 2007

/Duane N. Moore/

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